

**"How to Open and Close the 1200 Ton Shield Door
between the CDF Assembly Hall and the CDF Collision
Hall"**

This procedure outlines the steps to be used to open or close the 1200 Ton Shield Door, between the CDF Assembly Hall and the CDF Collision Hall.

Approvals:

(CDF Mechanical Group Engineer) (Date)

(CDF Department Head) (Date)

1.0 Controlled Copies of this procedure.

Two controlled copies of this procedure will exist.

One will be held in the CDF Department Office.

One will be held in the CDF (B-0) Office Complex, Room 171i.

All other copies will be marked, "**INFORMATIONAL COPY ONLY**"

2.0 CDF Movement Procedures.

STEP 1: Identify Key Personnel and their Responsibilities and Minimum Personnel Requirements

2.0.1: Objective: To identify the responsibilities of each individual involved in the preparation for and the movement of the 1200 Ton Shield Door.

2.0.2 Responsibilities:

- a). **Authorized Instructor:** is a person with rigging experience and designated by the CDF Department Head. May be called upon to instruct people in this procedure. Is qualified and may be called upon to serve any function in the procedure.
- b). **Responsible Engineer:** may be called on to function as the Task Leader. May also be called upon to solve structural / mechanical problems such as how to move obstacles. Will be a structural or mechanical engineer designated by CDF.
- c). **Task Leader:** will insure that all personnel under his / her direction have performed their checks of the equipment and will insure that the equipment is properly installed . He / she will make certain that his / her personnel are located in their designated areas before the move begins. He / she will specify who will operate the equipment, such as the Unified Jacking System. He / she will move freely in the work area to insure that the movement of the 1200 Ton Shielding Door is completely controlled. His / her directions will be followed completely and therefore he / she becomes responsible for the safety of the personnel and equipment involved during the move. **NO** movement of the 1200 Ton Shield Door will be conducted without his / her presence.
- d). **Workers:** will remove / install hand stack shielding on top of the 1200 Ton Shield Door. They will install all required moving equipment and will insure that the equipment is serviceable and free from defects. They will move hydraulic push / pull cylinders as necessary. They will keep the area clean and free from obstructions and will follow all directions given by the Task Leader.
- e). **Unified Jacking System Pump Operator:** will be designated by the Task Leader and will be qualified to operate the equipment used to lift / lower, or push / pull the 1200 Ton Shield Door. He / she will follow all directions given by the Task Leader.
- f). **Forklift Operator:** will be designated by the Task Leader and will be qualified to operate the forklift truck. He / she will follow all directions given by the Task Leader.

g). **Personnel Lift Operator:** will be designated by the Task Leader and will be qualified to operate the Personnel Lift. He / she will follow all directions given by the Task Leader.

2.0.3 Minimum personnel requirements to install or remove hand stack shielding on top of 1200 Ton Shield Door.

- a). Task Leader, Responsible Engineer or Qualified Instructor (1 required)
- b). Forklift Operator (1 required)
- c). Workers - must follow directions of Task Leader (3 required)
- d). Personnel Lift Operator - must be qualified to operate Personnel Lift. Should be (1) of the workers (2.0.3.c) (1 required)
- e). Minimum total personnel (5 required)

2.0.4 Minimum personnel requirements for moving the 1200 Ton Shield Door.

- a). Task Leader, Responsible Engineer or Qualified Instructor (1 required)
- b). Forklift Operator and Unified Jacking System Pump Operator (should be the same person, if qualified for both functions) (1 required)
- c). Workers -- must follow directions of Task Leader (3 required).
- d). Minimum total personnel (5 required)

2.1 Operating Procedures for Opening and Closing the 1200 Ton Shield Door

The following procedures for opening and closing the 1200 Ton Shield Door will be followed with the strictest adherence to each step and will be verified by the Task Leader. A completed checklist (Section 3) must be filed with Bob Shovan , CDF Office Complex, Office 171i, for each move of the 1200 Ton Shield Door.

STEP 2: Area Preparation

CAUTION! Rolling the 1200 Ton Shield Door over loose debris could cause the Hilman Rollers to bind or stop suddenly. This could cause damage to the Hilman Rollers.

2.1.1 Objective: To provide a safe working environment for the safety of the personnel as well as the 1200 Ton Shield Door.

2.1.2 Procedure: The track on which the 1200 Ton Shield Door will be moved, will have all obstacles moved clear of the area and will have the area around them completely clear of debris. During the move, the workers will continuously verify that no objects are lying in the movement area of the Hilman Rollers.

STEP 3: Key Equipment / Inspection of Equipment:

2.1.3 Objective: To maintain proper performance of equipment for serviceability and safety.

2.1.4 Equipment:

- a). Unified Hydraulic Jacking System: will be inspected for leaks, cracks or other defects. All surfaces will be cleared of debris. The Task Leader will designate, from the list of trained people, who will check and operate this equipment.
- b). Hilman Rollers: will be free from defects and will roll easily.
- c). Push / Pull Hydraulic Cylinders: will be inspected for leaks, cracks or other defects.
- d). Forklift Truck: will be inspected for leaks, cracks or other defects. The Task Leader will designate, from the list of trained people, who will check and operate this equipment.

- e). Personnel Lift (Simon 3715): will be inspected for leaks, cracks or other defects. The Task Leader will designate, from the list of trained people, who will check and operate this equipment.

STEP 4: Placement of Equipment / Personnel to install or remove hand stack shielding on top of 1200 Ton shield Door

2.1.5 Objective: To insure a smooth and safe operation.

2.1.6 Equipment / Personnel:

- a). The Task Leader is free to move around the work area to supervise and give instructions.
- b). The Personnel Lift (Simon 3715) Operator will be trained in the operation of this Personnel Lift. He / she should always be in eye or voice contact with the workers during the removal of the hand stack shielding.
- c). The Fork Lift Operator will be trained in the operation of the Fork Lift Truck and will follow the directions of Task Leader. He / she should always be in eye or voice contact with Task Leader and workers while movement of equipment is taking place.

STEP 5: Placement of Equipment / Personnel while moving the 1200 Ton Shield Door.

2.1.7 Objective: To insure a smooth and safe movement of the 1200 Ton Shield Door.

2.1.8 Equipment / Personnel:

NOTE! While conducting the move, all directions will be given **ONLY** by the Task Leader.

- a). The Task Leader is free to move around the work area to supervise and give instructions.
- b). The Unified Hydraulic Jacking System and Operator should always be in visual or sound contact with the Task Leader
- c). The workers will be positioned so that they can identify problems with Hilman Rollers (clearances and interferences), and the hydraulic push / pull jacks and be able to confirm overhead clearances. They will also reposition the hydraulic push / pull cylinders as necessary.

NOTE: Use either 2.2 "Opening Procedure," or 2.3 "Closing Procedure."

2.2 Opening Procedure.

2.2.1 Objective: To open the 1200 Ton Shield Door (to allow access to the CDF Collision Hall), in a slow (about 1 foot per minute), controlled manner so that safety of personnel and equipment is maintained.

STEP 6: Removal of "Hand Stack Shielding"

CAUTION! Removal of "Hand Stack Shielding," from top of Shield Door will allow debris to fall to the floor area. While "Hand Stack Shielding" is being removed, hard-hats **MUST** be worn in this area.

2.2.2 Objective: To clear obstructions from top of "1200 Ton Shield Door," in a safe manner.

2.2.3 Steps to remove the Hand Stack Shielding:

- a). Remove vinyl strips around perimeter of 1200 Ton Shield Door. Strips should be reversed and re-attached to the 1200 Ton Shield Door.
- b). Release latches on upper plywood cover doors. Let hinged doors swing down to outside face of 1200 Ton Shield Door.
- c). Using Simon 3715 Personnel Lift, remove hand stack shielding from top of 1200 Ton Shield Door.
 1. Position Personnel Lift in front of shield door
 2. Place empty skid on deck at back of Personnel Lift.
 3. Raise Personnel Lift with (3) workers, to top of shield door.
 4. Remove hand stack shielding and place on skid.
 5. When skid is full, lower Personnel Lift and move skid to storage.
 6. Repeat steps 1 to 5 as necessary.
 7. After all required hand stack shielding is removed and stored, sweep and clean from top of 1200 Ton Shield Door floor of debris.

STEP 7: Points to check before beginning the 1200 Ton Shield Door move

2.2.2 Objective: To insure that the 1200 Ton Shield Door is ready to move.

WARNING! These items **MUST** be checked and confirmed before any moving operation is performed on the 1200 Ton Shield Door.

2.2.3 Complete Checklist under 3.1. Return completed "Check List," to Bob Shovan in CDF (B-0) Office Complex (Room 171i).

STEP 7: Open 1200 ton Shield Door

CAUTION! Rolling the 1200 Ton Shield Door over loose debris could cause the Hilman Rollers to bind or stop suddenly. This could cause damage to the Hilman Rollers and/or the 1200 Ton Shield Door.

2.2.6 Objective: To provide a safe working environment for the safety of the personnel as well as the 1200 Ton Shield Door.

2.2.7 Procedure: The area in which the 1200 Ton Shield Door will be moved, will have all obstacles moved clear of the area and will have the floor completely swept of debris. During the move, the workers will continuously verify that no objects are lying in the movement area. All over-head obstacles will be cleared from the area.

2.3 Closing Procedure

2.3.1 Objective: To close the 1200 Ton Shield Door (to secure CDF Collision Hall) in a slow (about 1 foot per minute), controlled manner so that safety to personnel and equipment is maintained.

STEP 5: Points to check before beginning the 1200 Ton Shield Door move

2.3.2 Objective: To insure that the 1200 Ton Shield Door is ready to move.

WARNING! These items **MUST** be checked and confirmed before any moving operation is performed on the 1200 Ton Shield Door.

2.3.3 Complete Checklist under 3.2. Return completed "Check List," to Bob Shovan in CDF (B-0) Office Complex (Room 171i).

STEP 6:

STEP : Installation of "Hand Stack Shielding"

CAUTION! Installation of "Hand Stack Shielding," on top of Shield Door will allow debris to fall to the floor area. While "Hand Stack Shielding" is being installed, hard-hats **MUST** be worn in this area.

2.3. Objective: To close any open areas on top of "1200 Ton Shield Door," in a safe manner.

2.3. Hand stack shielding installation procedure:

a). Using Simon 3715 Personnel Lift install hand stack shielding on top of 1200 Ton Shield Door.

1. Position Personnel Lift in front of shield door
2. Place full skid of hand stack shielding on deck at back of Personnel Lift.
3. Raise Personnel Lift with (3) workers, to top of shield door.

4. Place hand stack shielding in open areas on top of 1200 ton shield door.
 5. When skid is empty, lower Personnel Lift, remove empty skid, replace with full skid of hand stack shielding.
 6. Repeat steps 1 to 5 as necessary.
 7. After all required hand stack shielding is installed, and skids put in storage, sweep and clean floor of debris.
- b). Close upper plywood cover doors on 1200 Ton Shield Door and latch.
- c). Remove vinyl strip around perimeter of shield door. Strips to be reversed and re-attached to the shield door, to close opening between 1200 Ton Shield Door and wall.

3.0 Checklist

NOTE: Blank copies are kept in the "Controlled Copy," maintained in CDF (B-O) Office Complex, Office 171 i. Return completed check list to Bob Shovan in CDF (B-0) Office Complex , Room 171 i.

3.1 Opening 1200 Ton Shield Door

3.1.1 The following **Must** be checked and confirmed before any opening operation is performed.

_____ Confirm that radiation monitors are removed (contact Accelerator Division Safety)

_____ Confirm that interlock cables are disconnected (contact Accelerator Division Safety)

_____ Disconnect lighting on inside wall of 1200 Ton Shield Door.

_____ Remove wood floor filler panels between 1200 Ton Shield Door and crosswalk area.

_____ Disconnect cabling between Motor Drive Controllers (2) and Drive Motors (2).

_____ Remove panels in front of push / pull points

_____ Remove and store hand stack shielding from top of 1200 Ton shield Door

_____ Confirm that path of travel is free of debris and obstructions

Task Leader _____

Completed By _____ Date _____

Time _____

3.2. Closing 1200 Ton Shield Door

NOTE: Blank copies are kept in the "Controlled Copy," maintained in CDF (B-O) Office Complex, Office 171 i. Return completed check list to Bob Shovan in CDF (B-0) Office Complex , Room 171 i.

3.2.1 The following **MUST** be checked and confirmed before any closing operation is performed.

_____ Confirm that all Experimental elements in the CDF Collision Hall are ready to have 1200 Ton Shield Door closed.

_____ Confirm that path of travel is free of debris and obstructions.

3.2.2 After 1200 Ton Shield Door has been roughly positioned, to close opening, the following **MUST** be checked and confirmed before the 1200 Ton Shield Door is lowered to final position.

_____ Confirm that 1200 Ton Shield Door is centered in opening (+ / - 1")

_____ Confirm that Photo Cell and reflector are in alignment.

Task Leader _____

Completed By _____ Date _____

Time _____

4.0 Deviations from the Procedure

Must be approved by Responsible Engineer or Qualified Instructor.

5.0 Required Training and Authorized Training Personnel.

5.0.1 To be an Authorized Instructor, the person must have several years experience in the rigging field. The person must be designated by the CDF Department Head.

5.0.2 When an Authorized Instructor is present, the operation may declared to be a training session. No previous training is required by the other members of the team.

5.0.3 To be a Task Leader, the individual must have a number of years of experience in the rigging field and have been trained by the "Authorized Instructor," in the procedure. The qualifications of this individual are evaluated by the Authorized Instructor.

5.0.4 To be a Unified Jacking System Operator the person is expected to know how to identify problems in operating the Unified Jacking System (such as leaks and damaged parts), how to implement the Unified Jacking System and how to handle failures. He will demonstrate his ability to the "Authorized Instructor," before being designated as a Unified Jacking System Operator.

5.0.5 To be a Forklift Truck Operator, the person is expected to know how to identify problems in operating the Forklift Truck (such as leaks and damaged parts), how to implement the system and how to handle failures. He / she will demonstrate his / her ability to the "Authorized Instructor," before being designated as a Forklift Truck Operator.

LIST OF RESPONSIBLE ENGINEERS FOR THIS PROCEDURE

Name CARTER, HARRY ID # 3236 .
Last, First

Name _____ ID # _____ .
Last, First

LIST OF AUTHORIZED INSTRUCTORS FOR THIS PROCEDURE

Name SHOVAN, ROBERT ID # 851 .
Last, First

Name _____ ID # _____
Last, First

6.0 Training Materials.

None at this time.

7.0 List of Trained People for this procedure.

The most current copy of this training list must be kept with the controlled copies of this movement procedure, in the CDF Department Office and CDF (B-0) Office Complex, Room 171i. If the individual's name is not on the controlled copy list, then that individual is NOT authorized to do the specified function

7.1 Task Leader:

See "Training Attendance Forms," with Controlled Copy of procedure held in CDF (B-0) Office Complex, Room 171i.

7.2 Workers:

See "Training Attendance Forms," with Controlled Copy of procedure held in CDF (B-0) Office Complex, Room 171i.

7.3 Unified Jacking System Pump Operator:

See "Training Attendance Forms," with Controlled Copy of procedure held in CDF (B-0) Office Complex, Room 171i.

7.4 Forklift Truck Operator

See "Training Attendance Forms," with Controlled Copy of procedure held in CDF (B-0) Office Complex, Room 171i.

7.5 Personnel Lift Operator

See "Training Attendance Forms," with Controlled Copy of procedure held in CDF (B-0) Office Complex, Room 171i.

8.0 References and Supporting Documentation.

None at this time.